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*PATENT*  
DKT. STL10986

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of: **Sundeep Chauhan**

Assignee: **SEAGATE TECHNOLOGY LLC**

Application No.: **10/625,386**

Art Unit: **2816**

Filed: **July 23, 2003**

Examiner: **Hai L. Nguyen**

For: **HIGH SPEED DIGITAL PHASE/FREQUENCY COMPARATOR FOR  
PHASE LOCKED LOOPS**

**Mail Stop Appeal Brief - Patents**

**Commissioner for Patents**

**P. O. Box 1450**

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**ATTENTION: Board of Patent Appeals and Interferences**

**APPELLANT'S REPLY BRIEF**

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**THE SECTION 102 REJECTION IS REVERSIBLE ERROR BECAUSE THE  
OFFICE HAS NOT SUBSTANTIATED EVIDENCE THAT STASZEWSKI '693  
DISCLOSES ALL THE FEATURES OF THE REJECTED CLAIMS**

“The rules of the PTO require that application claims must “conform to the invention as set forth in the remainder of the specification and the terms and phrases used in the claims must find clear support or antecedent basis in the description so that the meaning of the terms in the claims may be ascertainable by reference to the description.”<sup>1</sup> Thus, during examination claims are given their “broadest reasonable interpretation consistent with the specification.”<sup>2</sup> The “broadest reasonable interpretation” is the meaning that the skilled artisan would give to the claim term in view of the associated usage provided in the specification.<sup>3</sup> A construction that is inconsistent with the written description would not be arrived at by the skilled artisan, and is therefore not a “reasonable interpretation.”<sup>4</sup>

1. Independent Claims 1 and 20

Independent claims 1 and 20 feature an apparatus and method for phase comparison featuring the exploitation of a *transition location signal*:

*a phase/frequency comparator circuit that is configured to generate a phase error responsive to a transition location signal.*

(excerpt of claim 1, emphasis added)

*mapping the snapshot to a numerical phase difference value that is generated responsive to a signal that corresponds to a transition location of the first signal.*  
(excerpt of claim 20, emphasis added)

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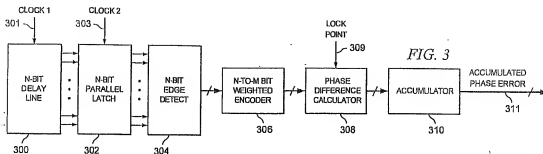
<sup>1</sup> *Phillips v. AWH Corp.*, 75 USPQ2d 1321 (Fed. Cir. 2005)(en Banc), quoting 37 C.F.R. § 1.75(d)(1).

<sup>2</sup> *Phillips, supra*; MPEP 2111

<sup>3</sup> *In re American Academy of Science Technical Center*, 70 USPQ2d 1827 (Fed. Cir. 2004); *In re Cortright*, 49 USPQ2d 1463, 1468 (Fed. Cir. 1999); *In re Morris*, 44 USPQ2d 1023 (Fed. Cir. 1997)

<sup>4</sup> *Phillips, supra*; *In re Morris, supra*; *In re Zletz*, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989)

The term “transition location signal” is expressly defined in the specification as a signal from the N-bit edge detector 304 that informs the N-to-M bit weighted encoder of the location of a signal transition:



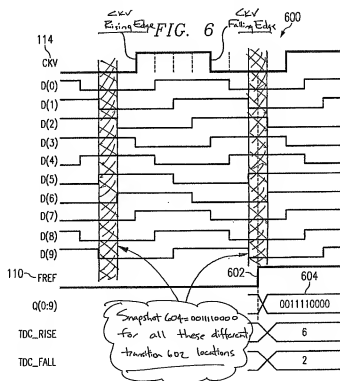
N-bit edge detect circuit 304 outputs a single bit at the transition point of a falling edge (or rising edge, depending on the design) in the snapshot provided by N-bit parallel latch 302. This signal bit may be referred to as a transition location signal.<sup>5</sup>

The Office believes this dispute is wrapped up in semantics, stating that although the signal relied on in Staszewski ‘693 is “labeled” a timing signal, it nonetheless allegedly anticipates the featured *transition location signal*:

In response to Appellant’s arguments, with respect to the prior art rejections to claim 1, stating that Staszewski does not teach or suggest an apparatus having a transition location signal because Staszewski labels the snapshot 604 to be a timing signal, not a transition location signal as claimed. Even though Staszewski does not call 604 as a transition location sign, 604 is interpreted as claimed transition location signal.<sup>6</sup>

Appellant agrees with the Office to the extent that Staszewski ‘693 does not in any way characterize the snapshot signal 604 as being a signal that informs as to the location of a transition; only the Office characterizes it as such. However, what the Office has failed to explain is how the snapshot signal 604 can be reasonably interpreted as the featured *transition location signal* in view Appellant pointing out that different locations of a

transition would produce the same snapshot signal 604. Appellant and the Office agree that the snapshot signal 604 is a multi-bit word informing as to the state of a plurality of delayed replica D(n) of the oscillator 104 (dVCO) pulse CKV 114. However, unlike the featured *transition location signal* of the claimed embodiments, Appellant has demonstrated the fact that a FREF transition can occur at any location within either of the two intervals denoted by hatching in Appellant's marked up depiction of FIG. 6 in Staszewski '693, either before the CKV rising edge or after the CKV falling edge, and yet produce the same value (in the depicted case the value 0011110000) for the snapshot signal 604:



Staszewski '693 characterizes the snapshot signal 604 to be a timing reference.<sup>7</sup>

Finding the Office's interpretation that the snapshot signal 604 informs as to the transition location requires one to agree that a first FREF transition located within the hatched interval before the CKV rising edge and a second FREF transition located within the hatched interval

<sup>5</sup> Specification, pg. 7 lines 7-10, emphasis added.

<sup>6</sup> Examiner's Answer, pg. 7 lines 2-6.

after the CKV falling edge are in the same location, because the value of the snapshot signal 604 would be the same. The skilled artisan readily understands such a conclusion would be erroneous as being divorced from reality. Thus, the Office's has not substantiated any evidence as to why the skilled artisan would agree that the broadest reasonable interpretation of the featured *transition location signal* can include the snapshot signal 604 in Staszewski '693.

As understood, the Office appears to argue that it is reasonable for a "location signal" to have the same value at different locations:

Since, the skilled artisan in the art would clearly understand that a transition location signal as the signal that corresponds to transition location of the signal FREF (110) makes its transition at each of the locations requiring the signal FREF as depicted in FIG. 6 of Staszewski et al.<sup>8</sup>

It is unclear what the Office means by "at each of the locations requiring the signal FREF...." It is also unclear what the Office means by "the signal FREF (110) makes its transition at each of the locations...." Clearly, the FREF transition is a step function that can occur at different locations within either of the two hatched intervals depicted above and produce the same value for the snapshot signal 604. In any event, the Office's rationale is erroneous because the skilled artisan would readily agree that a first FREF transition within one of the hatched intervals is at a different location than a second FREF transition within the other of the hatched intervals. Accordingly, a "location signal" informing as to the locations of the first and second FREF transitions would necessarily indicate different respective location values.

Finally, the Office alleges that Appellant's own evidence admits that the snapshot signal 604 in Staszewski '693 is a *transition location signal*:

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<sup>7</sup> See, for example, Staszewski '693 col. 8 lines 45-46.

<sup>8</sup> Examiner's Answer, pg. 7 lines 6-9.

Furthermore, the signal 604 is a transition location signal as evidenced by Appellant's acknowledgement in page 11 of the arguments (see the notes of Appellant's drawing) in which Appellant admits that 604 in Fig. 6 of Staszewski is transition location signal. Note that claim only requires a transition location signal, not specific to differentiating between rising or falling transition.<sup>9</sup>

The Office is referring to Appellant's marked-up FIG. 6 in Staszewski '693 depicted above. FIG. 6 depicts a particular location of the FREF transition 602 that produces a value of "00011110000" for the snapshot signal 604. Appellant sketched in two hatched areas that define the multitude of possible locations where an FREF transition 602 could occur and yet produce the same value of "00011110000" for the snapshot signal 604. In explanation of all that, Appellant wrote on FIG. 6 the following: "Snapshot 604 = 00011110000 for all these different transition 602 locations." Appellant traverses the Office's allegation that the evidence is in any way an admission that the snapshot signal 604 is a *transition location signal*. To the contrary, Appellant believes the skilled artisan would understand the evidence demonstrates why the snapshot 604 cannot reasonably be called a *transition location signal*, because it does not inform as to two differently located FREF transitions 602 being at different locations.

Therefore, the skilled artisan would conclude that the Office's interpretation of *transition location signal* to include the snapshot signal 604 of Staszewski '693 is inconsistent with both the ordinary meaning of the term and its usage in the specification. As such, the Office's construction of the disputed term is not within the broadest reasonable interpretation, so it cannot sustain the anticipatory rejection.

## 2. Independent Claim 10

Independent claim 10 recites in pertinent part:

*wherein the phase/frequency comparator includes...  
encoding circuitry coupled to the phase detecting stage.*  
(excerpt of claim 10, emphasis added)

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<sup>9</sup> Examiner's Answer, pg. 7 lines 10-14.

The Office provides nothing new in the Examiner's Answer to its stated position. Appellant has shown that the Office's rationale is reversible error. First, the rationale relies entirely upon the extrinsic evidence of a dictionary definition for "encoder." By that definition, the Office concludes that the NORM circuit in Staszewski '693 anticipates the featured *encoding circuitry* because it allegedly "converts the input digital signal into its equivalent binary code." However, Appellant has shown that the passage of Staszewski '693 that the Office relies upon to reach that conclusion neither discusses the NORM circuit nor does it disclose anything that "converts the input digital signal into its equivalent binary code."<sup>10</sup> The rationale for the rejection is based upon a misplaced characterization of the cited reference.

Furthermore, Appellant has shown that the NORM (normalization) circuit of Staszewski '693 alters the input value quantitatively, not qualitatively, and that as such the skilled artisan would readily understand that the NORM circuit of Staszewski '693 is not within the ordinary meaning of what is referred to as an "encoding circuit."<sup>11</sup>

Therefore, the skilled artisan would conclude that the Office's interpretation of *encoding circuit* to include the NORM of Staszewski '693 is inconsistent with both the ordinary meaning of the term and its usage in the specification. As such, the Office's construction of the disputed term is not within the broadest reasonable interpretation, so it cannot sustain the anticipatory rejection.

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<sup>10</sup> Appellant's Pre-Brief Request of 9/17/2007 pg. 5; Appellant's Response of 8/17/2007 pg. 14-15; Appellant's Response of 2/14/2007 ppg. 11-13; Appellant's Response of 5/30/2006 ppg. 14-17; Appellant's Response of 11/28/2005 ppg. 18-20.

<sup>11</sup> *Id.*

**Conclusion**

For the reasons set forth above, Appellant respectfully requests that the rejections of claims 1, 10, and 20 and the claims depending therefrom be reversed.

Respectfully submitted,

By: 

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